W5YI

Nation's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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ARRL Comments on Digital HF Rules
Spectrum Shared by Hams to be Sold
FCC to Open Millimeter Wave Bands
Gay Club Settles Discrimination Case
Ham Call Signs & Licensing Statistics
DBS-TV Completes National Rollout
AM Broadcast to Move up the Band
"Radio-on-Demand" now Possible!
Telecommunications Reform Fails
"Windows-95" & "Marvel" to Debut
Privacy and Online Services
Congress Passes FBI Wiretap Bill
AMSAT Holds Annual Meeting
FCC on Electromagnetic Compatibility
First Low Earth Orbit License Issued

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ARRL Says FCC Should Adopt Proposed HF Digital Rules

The American Radio Relay League has submitted its formal comments on new rules which, if adopted, would lead to widespread digital communications under automatic control in the amateur HF bands, *PR Docket No. 94-59.*

The filing was in response to a June 23rd *Notice of Proposed Rulemaking (FCC 94-171.)* Comments were to close on Oct. 1st, but this beaing a Saturday, the ARRL filed them on Monday, Oct. 3rd instead. The controversial NPRM was partially based on the League's *Petition for Rule Making,* RM- 8218, filed Feb. 1, 1993. The new rules would read as follows:

§ 97.221 Automatically controlled digital station.

(a) This rule section does not apply to an auxiliary station, a beacon station, a repeater station, an earth station, a space station, or space telecommand station.

(b) A station may be automatically controlled while transmitting RTTY or data emissions on the 6 m or shorter wavelength bands, and on the 28.120- 28.189 MHz, 24.925-24.930 MHz, 21.090-21.100 MHz, 18.105-18.110 MHz, 14.0950-14.0995 MHz, 14.1005- 14.112 MHz, 10.140-10.150 MHz, 7.100-7.105 MHz, or 3.620-3.635 MHz segments.

(c) A station may be automatically controlled while transmitting a RTTY or data emission on any other frequency authorized for such emission types provided that:

(1) The station is responding to interrogation by a station under local or remote control: and

(2) No transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.

The ARRL said that these new rules be adopted exactly as proposed with certain "...appropriate cautionary instructions" already contained in § 97.101(b). This warning should emphasize that amateurs must cooperate in the use of their frequencies an that no frequencies are assigned for the exclusive use of any station.

In support of the proposed rule changes, the League said:

1. The League's goal in asking for the creation of subbands for HF data stations under automatic control; and in supporting modifications of its original petition to allow automatically controlled data stations to communicate with locally or remotely controlled data stations, "...was to encourage experimentation, development and refinement of these efficient communications modes."

2. The League also wants to expedite amateur conversion of new and existing complex digital technologies to practical use, and to permit quicker and more efficient emergency and public service information transfer. The ARRL believes that the new proposed rules would constitute a large step toward these important goals.

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3. "Notwithstanding the indisputable benefits of greater flexibility in experimentation and development of digital communications, the issues in this proceeding are difficult," the ARRL acknowledged. This was supported by the wide variety of viewpoints filed in this proceeding to date; more than half of which strongly urged that no automatic control be permitted in the HF bands at all. The balance urged that automatic control be permitted for digital stations only in specified subbands, as the League had originally proposed in RM-8218. Only two commenters pushed for the adoption of the proposed rules with certain other provisions to avoid interference in the HF bands.

4. The League agreed that the HF amateur bands are extremely crowded, especially during mornings, evenings and during weekend periods, when amateurs are most active. "The regulatory provision for any automatically controlled stations, in crowded bands which are subject to dynamic, worldwide propagation which changes rapidly involves a substantially increased risk of interference.," ARRL said. "This places on the amateur community a new emphasis on the already significant responsibility to cooperate in the use of shared HF frequencies, domestically and worldwide."

5. Initially, the League asked only for the creation of specific subbands for automatically controlled stations, "...where users of other amateur modes might reasonably expect potential interference from automatically controlled stations." While acceptable to most users of other modes, this approach was thought to be lacking by a vocal minority of digital communicators.

"Because the goal of the League in filing RM-8218 was to encourage, and not to stifle, these modes, the League supported the modification to its proposal suggested by certain of these digital communicators and experimenters, and supported the grant of authority to permit automatically controlled stations to communicate with locally or remotely controlled stations outside the proposed subbands as an additional accommodation."

6. The ARRL said this "...was not done without some reluctance, inasmuch as the interrogation of an automatically controlled station, triggering that station's response from a point often far removed from the transmitter of the automatically controlled station, inherently involves a significant risk of interference in the HF amateur bands. There is not present in such a situation the ability to cooperate in interference avoidance that is prevent in other amateur modes used at HF, because the interrogating station is not in a position to evaluate the propagation conditions at the far end of the link, where the automatically controlled transmitter is present."

7. Nonetheless, the League's believes "...on balance, an accommodation for intercommunication between stations under automatic control using authorized digital emissions, and locally controlled stations outside the proposed subbands can probably be accommodated without significant disruption of other amateur HF communications, provided that the safeguards [contained in the § 97.221(c)] are adopted."

These safeguards were requested by the League in its comments in response to RM-8280 as the minimum necessary to decrease the interference potential in expanding automatic control of HF data communications beyond the proposed subbands.

"The users of amateur digital communications in the HF bands are aware," the League said, "that the Commission is imposing on them a significantly increased responsibility by the automatic control privileges contained in the *Notice* proposal, and that, should the enactment of the rules as proposed lead to a significantly increased enforcement burden for the Commission, automatic control could in the future be curtailed."

8. This League believes this proceeding reflects the faith the FCC has in the capability of the amateur service to self-regulate and to cooperate in the use of the shared frequencies. It added, however, no one should "...be permitted to believe that the authorization of automatic control in any configuration confers on the control operator a sense of entitlement or ownership or proprietary interest in the given frequency merely by past operation of an automatically controlled digital station on a given frequency, or the right to usurp that frequency for long periods of time, to the detriment of other amateurs."

9. The League noted recently in the case of VHF and UHF repeaters that "...a few individuals are under the mistaken impression that operation of a fixed station such as a repeater, whether or not operated in accordance with a recommendation from a frequency coordinator or whether in accordance with established bandplans, on a given frequency or a pair of frequencies, confers some proprietary status on the licensee, or some prioritized entitlement to the use of the frequency in the future. Plainly, such is not the case."

"That mistaken perspective should not be permitted to develop in the context of fixed, automatically controlled digital stations in HF bands. The absence of any entitlement or priority in the use of any frequency by any automatically controlled HF data station should be clarified in any final order adopted in this proceeding."

10. The new rules are "...absolutely responsive to the expressed wishes of a significant portion of the

Amateur Radio community..." the League said. "The benefits of increased flexibility in the development of data communications in the HF amateur bands will permit not only greater responsiveness by amateurs in emergencies and in the fulfillment of their public service obligations, it will also permit a far greater ability to further develop low-cost digital communications systems, and the adaptation of new technologies for use by individuals."

The ARRL comments were authored by their General Counsel Christopher D. Imlay, N3AKD of the Washington DC law firm of Booth, Freret & Imlay.

FCC PROPOSES TO AUCTION SPECTRUM SHARED BY AMATEUR SERVICE

At its October 20 meeting, the FCC adopted a *Notice of Proposed Rule Making (NPRM)* that would use competitive bidding to issue licenses in the 2390-2400, 2402-2417 and 4660-4685 MHz bands. The 2 GHz bands are used by amateurs on a secondary basis for such purposes as ATV, point-to-point links and weak-signal experimentation.

Auction winners would use their licenses to provide fixed and mobile services, or services such as entertainment broadcasts to aircraft, wireless local-loop telephone service, broadcast auxiliary services to support high-definition TV, or "low-power communications." The FCC also requests comment on the "continued use of some of this spectrum by the amateur community."

These bands are among the 200 MHz subject to reallocation by the Department of Commerce from federal government uses to the private sector, under the *Omnibus Budget Reconciliation Act of 1993.* The Act requires the FCC to adopt rules by February 10, 1995, to allocate the spectrum.

"I think the Commission is sensitive to the usage of amateurs, and we intend to explore and consider the ability of services to share the bands with amateur use," FCC engineer Steve Sharkey said. "But it's something that we have to see what kind of comments come in."

Sharkey said that during the previous round of comments in this proceeding, "We had some comments from amateur groups. A lot of the comments we received from manufacturers, a majority of them, didn't specifically address the need or ability to share with amateurs. So we hope to get feedback on that.

"Maybe that's something that the amateur community can really address, more specifically in reply comments to the manufacturers that are proposing services. You know, a lot of the amateur comments are very general about not being able to share with services. But I think we could get more specific," he said.

In its August 9, 1994 report to the Commerce Department, which oversees federal spectrum, the FCC said it agreed with commenters that there is substantial likelihood that reallocation of the 2390-2400 MHz band to commercial or local government use could cause "serious disruption" to Amateur Service use.

With regard to the 2402-2417 MHz band, the FCC said it is unlikely that a licensed service could share the band with unlicensed devices, including data communications, intercom systems and cordless phones, now operating or entering this band under Part 15 FCC Rules.

"Reallocation of this band would jeopardize the significant private sector investment already made in developing new technologies operating under Part 15," the FCC added. "Considering the potentially adverse effects on the Amateur Radio Service and on use of the band by devices operating under Part 15, as well as the difficulties in using this band because of the amount of noise from ISM [Industrial, Scientific and Medical] devices, we believe that reallocation of this band presents less value to the private sector than any other band identified for reallocation," the FCC said at the time.

Nevertheless, the FCC's position announced October 20 is that "this spectrum would be made available for a variety of new services, creating new business opportunities and employment. ...The proposed allocations will benefit the public by providing for the introduction of new services or the enhancement of existing services."

Licensees would be free to develop agreements for interference conditions between their service areas. The FCC said it "seeks to create a competitive market structure that would promote reasonable prices for users and provide operators with incentives to develop and introduce innovative service features and technologies. The Commission requests comment on an appropriate licensing structure, including channel block size and geographic licensing areas.

The FCC proposed to allow users to choose the channelization, signal strength, modulation techniques and antenna characteristics in providing service, consistent with not causing interference to other users. This language is somewhat ambiguous. We believe it more likely that licensees who are the high bidders at auction would make these choices, rather than service users.

FCC TO OPEN MILLIMETER WAVE BANDS

At the same meeting, the FCC proposed to make

available a whopping 18 GHz of millimeter-wave spectrum to new broadband licensed, unlicensed and radar applications.

The term "millimeter wave" refers to the fact that the wavelength of radio signals on frequencies between 30 GHz and 300 GHz ranges from 1-10 millimeters.

"This allocation would substantially increase the amount of spectrum space available for commercial uses and could shift the emphasis in this band from military to civilian applications," the Commission said. "Making these new frequencies available will permit the development of short-range wireless radio systems that could have communications capacities approaching those now achievable only with coaxial cable and fiber optics.

"Such systems could support many short-range applications that require very high bandwidth or data transfer rates. Uses could include educational or medical applications such as remote wireless access to libraries or other informational databases; and non-communication uses such as automobile radar systems to avoid collisions.

"The proposed rules provide for the operation of new services on both licensed and unlicensed bases. The short range of signals in this frequency range minimizes the potential for interference, allowing the Commission to permit unlicensed operation for many uses.

"The radio spectrum above 40 GHz is generally unused because the technology to operate in this portion of the spectrum has been prohibitively expensive. In recent years, however, the U.S. Government has funded projects in millimeter wave technology for a number of military and scientific applications. The Defense Department's Advanced Research Projects Agency has funded a nearly $600,000,000 program to decrease component costs for this technology. Given these advances, it now appears that millimeter wave technology can be used for commercial applications."

PROPOSED MILLIMETER WAVE BANDS

(Note: The following table of bands obtained by W5YI Report is more detailed than the list officially released by the Commission. The FCC has only released a less specific list that does not include subbands or licensing categories.)

Licensed	**(GHz):**	40.5-42.5	47.4-48.2
71-71.5	84-84.5	103-103.54	116-116.5
122-122.5	126-126.5	152-152.5	
Unlicensed	**(GHz):**	59-64	71.5-72
84.5-85	103.5-104	116.5-117	122.5-123
126.5-127	152.5-153		
Vehicle Radar	**(GHz):**	47.2-47.4	76-77
94.7-95.7	139-140		

GAY HAM CLUB SETTLES DISCRIMINATION CASE

The Lambda Amateur Radio Club (LARC), a national gay ham radio association, and the American Radio Relay League, Newington, CT announced a settlement last week of LARC's discrimination complaint against the League for refusing to publish the gay group's notice in its classified advertising section. The settlement commits the League to adopt a non-discrimination policy, and provides LARC with attorney's fees, remedies for non-compliance, and free advertising.

"This settlement shows that Connecticut's civil rights law is an effective tool for remedying discrimination," said Suzanne B. Goldberg, a staff attorney with *Lambda Legal Defense and Education Fund,* who represented the radio club along with cooperating lawyers from the New York Law firm of Brown, Raysman & Millstein. Lambda said that for more than six years the editors of the League's QST journal had rejected LARC's submission of a classified ad that read, "'Lambda Net' club for gay hams with members nationwide and Canada. On-air skeds and newsletter. For info write..."

The ARRL contended that it rejected the ad for representing a "special interest" while at the same time publishing the ads of other ham clubs with memberships ranging from Jehovah's witnesses and Ayn Rand enthusiasts, to missionaries and animal rights supporters.

In one of the first cases to test the reach of Connecticut's 1991 law prohibiting sexual discrimination, the state's *Commission on Human Rights and Opportunities* ruled in February 1994 that it had "probable cause" to hold that the League's refusal to print the classified was motivated by bias against the members' sexual orientation. "The issue in this instance is clearly the fact that LARC's members identify themselves as Gay," the Commission wrote. Settlement negotiations between the parties have been ongoing ever since.

Under the terms of the agreement finalized Oct. 20, the League is to publish a non-discrimination statement in each subsequent edition of QST, run four one-eighth page block advertisements, and print six classified advertisements, all at no charge to LARC. In addition, ARRL is to pay $25,000 in attorney's fees, and commit to a policy of non-discrimination towards other lesbian and gay ham radio associations.

"The initial victory at the Commission was an important indication of the seriousness with which Connecticut is treating sexual orientation discrimination complains," added Goldberg. "This settlement not only confirms Connecticut's resolve, but broadcasts a clear signal that anti-gay discrimination doesn't pay." (News Release, Lambda Legal Defense and Education Fund)

AMATEUR RADIO CALL SIGNS

...issued as of the first of October 1994:

Radio District	Gp."A" Extra	Gp."B" Advan.	Gp."C" Tech/Gen	Gp."D" Novice
Ø (*)	AAØTH	KGØQC	(***)	KBØPDL
1 (*)	AA1KV	KD1XA	N1TDL	KB1BKV
2 (*)	AA2UF	KF2XT	(***)	KB2RWI
3 (*)	AA3IR	KE3OY	N3TLT	KB3BEZ
4 (*)	AD4XP	KS4EO	(***)	KE4RJB
5 (*)	AB5XS	KK5CJ	(***)	KC5JYC
6 (*)	AB6FU	KO6IW	(***)	KE6MUJ
7 (*)	AB7FA	KJ7DP	(***)	KC7FXN
8 (*)	AA8QP	KG8LU	(***)	KB8VBV
9 (*)	AA9MK	KF9XX	N9YRJ	KB9JAY
N.Mariana Is.	KHØM	AHØAN	KHØDN	WHØAAX
Guam	WH2H	AH2CX	KH2KQ	WH2ANG
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6NQ	WH6YB	WH6CRX
Kure Is.			KH7AA	
Amer. Samoa	AH8K	AH8AG	KH8BH	WH8ABB
Wake W.Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7PT	WL7XL	WL7CHS
Virgin Is.	WP2O	KP2CD	NP2HR	WP2AHU
Puerto Rico	(**)	KP4XP	(***)	WP4MTG

CALL SIGN WATCH: *=All 2-by-1 "W" prefixed call signs have been assigned in all radio districts. **=All Group A (2-by-1) format call signs have been assigned in Hawaii, Alaska and Puerto Rico. ***=Group "C" (1-by-3) call signs have now run out in all radio districts except call area 1, 3 and 9.

[Source: FCC, Gettysburg, Pennsylvania]

DARA SCHOLARSHIP PROGRAM FOR 1995

The Dayton Amateur Radio Association, Inc., (sponsors of the Dayton Hamvention) is once again offering eight scholarships of $2,000 each to hams graduating from high school in 1995. There are no restrictions on the course of study planned by the student, nor must it lead to a four year course of study. (All schools must be accredited, however)

The awards are based on a combination of financial need, scholastic achievement, contributions to amateur radio and community involvement. The student's application must be accompanied by a copy of their ham ticket, high school grade transcript, copy of the letter of acceptance from the school and a 75-word or less composition explaining the student's future plans and why the scholarship in important to him/her.

Applications, which must be postmarked no later than May 15, 1995, are available from the:

DARA Scholarship Committee, Stan Kuck, Chairman, 45 Cinnamon Ct., Springboro, OH 45066-1000.

JULY AMATEUR LICENSING STATISTICS

July	1991	1992	1993	1994
New Amateurs:				
New Novices	1662	1024	709	128
New Tech's	2932	2752	1397	1878
New Tech Plus	N/A	N/A	N/A	269
Total New:	***4676***	***3843***	***2125***	***2297***
Upgrading:				
Novices	1670	836	254	N/A
Technicians	*764	*596	*286	N/A
Generals	463	409	189	N/A
Advanced	321	309	104	N/A
Total:	***3218***	***2150***	***833***	***N/A***
Renewals:				
Total Renew:	107	65	158	5172
Novices	12	9	12	499
Technicians	19	13	35	1050
Purged:				
Total Dropped:	21	10	0	0
Novices	21	3	0	0
Census:				
Indiv. Oper.	***525574***	***575113***	***616576***	***658550***
Change/Year	+35172	+49539	+41463	+41974

Individual Operators by Class: (and % of total)

Extra	Advan.	General	Technic.	Novice	Total:
July 1991					
55783	106732	121505	144593	96961	***525574***
10.6%	20.3%	23.1%	27.5%	18.4%	100.0%
July 1992					
60081	109215	124359	182696	98762	***575113***
10.4%	19.0%	21.6%	31.8%	17.2%	100.0%
July 1993					
63655	111642	126535	213817	101177	***615576***
10.3%	18.1%	20.5%	34.7%	16.4%	100.0%
July 1994					
67226	114298	128147	249490	99389	***658550***
10.1%	17.4%	19.5%	37.9%	15.1%	100.0%

(No Code Tech: 219169, Tech Plus: 30321)

Club/RACES	(1991)	(1992)	(1993)	(1994)
& Military:	2431	2431	2431	2431
Total Active:	**528005**	**577544**	**619257**	**660991**
% Increase	+7.1%	+9.4%	+7.2%	+6.7%

(= Does not include Technicians upgrading to Tech Plus)*

NOTE: The FCC in Gettysburg, PA is in the process of switching over from one (old) computer system to another PC-based system. Some of the 1994 statistics may not be accurate at this point. While the total number of radio amateurs is growing by about 7% a year, it is interesting to note that there were 26.3% more Techs in 1992 than in 1991, 17.0% more in 1993, and 16.7% more in 1993. About 12% of all Technician Class amateurs have passed a Morse code exam.

[Source: FCC Licensing Facility, Gettysburg, PA]

• **RCA's Digital Satellite System** has now deployed in most areas of the country. The west coast, Texas, Georgia, Florida and New England are the last areas to get access to the 150-channel TV service. DSS offers two services, **DirecTV,** the national Direct Broadcast Satellite service owned by GM/Hughes, and **USSB,** Hubbard's U.S. Satellite Broadcasting.

Together, they project 500,000 subscribers by year end - not an overly large number considering there are some 62 million cable subscribers. DSS claims 100,000 on board right now. DirecTV's goal is to have 10 million subscribers by the year 2000.

Demand continues to outstrip supply for the ($700 to $900) receivers and 18-inch diameter dishes. RCA/Thomson says they are producing 5,000 units a day! But dealers say it isn't enough. Some consumers are disturbed to learn that they have to pay another $30 (or more) a month for programming.

PrimeStar, the medium power cable operator's own DBS entry, says they have more subscribers than DSS. Cable operators continue to cite some of DSSs shortcomings ...among them the lack of local programming, outages caused by rain storms and the difficulty in getting customer service from local equipment outlets.

• **The FCC is in the process of expanding the AM broadcast band** to incorporate the new added spectrum between 1605 and 1705 kHz. The Commission previously determined that an expanded AM band would improve overall quality of AM service by lessening interference and congestion in the existing 535 to 1605 kHz band.

The FCC opened a filing window last year for existing AM stations that wished to migrate to the expanded band. Eighty AM stations have now been identified as being qualified to apply for one of the ten frequencies. The FCC had to rank and select specific stations where more than one station was eligible.

Several stations were weeded out from moving to the new band because of existing Canadian, Mexican and ITU Region 2 treaty agreements ...or harmonic relationships with existing AM stations in their service area.

FCC rules also require protection of *Federal Travelers' Information Stations* ("TIS") which transmit noncommercial traffic, road condition and travel information at 1610 kHz. *(Oct. 14 FCC press release.)*

• A **Third WRC-95 Industry Advisory Committee Meeting** was held Oct. 27 in Washington, DC. This committee, which consists of six IWG's (Industry Working Groups), provides the government with advice, technical support and recommendations in preparation for U.S. proposals and positions at the 1995 World Radiocommunication Conference. *(FCC Public Notice)*

• **"Programming-on-demand" is the new information age buzzword phrase** that is becoming more commonplace these days. It generally applies to video programming - especially movies. But "automatic" radio-on-demand is indeed now possible! A version was discussed at the recently concluded *National Association of Broadcasters* show held in Los Angeles.

Seattle-based Microsoft Corp's advanced consumer technology department told how it is testing a microdisc system that monitors a person's radio listening habits. A profile is then developed of their favorite programming and music.

Special software operating in the background reads the digitized labels of songs, news and traffic reports that is simultaneously broadcast by the new digital *Radio Broadcast Data System.* A list of the user's preferences is then compiled and stored for later use.

RBDS allows a radio station to broadcast its call letters, format and other information about its programming on a subcarrier. RBDS equipped AM/FM radio stations can also display text messages along with its audio broadcasts ...such as the name of a song being aired which is collected.

So it apparently won't be long before your radio will tune itself to what you want to hear! Nearly two hundred radio stations now have RBDS.

Other RBDS features on the drawing board include nationwide digital paging and GPS (satellite delivered Global Positioning System) reports delivered to your automobile dashboard!

Sony Software and Warner Brothers also announced a joint venture to introduce the satellite-delivered 24-hour *SW Network* - which will offer a variety of programming to a targeted radio audience - early next year.

• **World's largest software company buys world's largest financial software publisher!** Did you know that Bill Gates & Company purchased Intuit, Inc. for $1.5 billion during mid-October? That certainly is big bucks for a company whose main product sells for only $39! Microsoft's objective is to become the major force in PC and TV-based financial transactions.

Intuit, Inc., of course, distributes the leading Quicken PC financial software used by some six million users! Some banks even use it to permit their customers to do banking from home.

Look for Microsoft to quickly expand the electronic bill paying and banking services business. Rumors are that they will charge banks and affiliated companies a small service fee which could amount to astronomical profits if it catches on.

• **Blockbuster video plans to expand into new markets now that it is part of Viacom.** They, for one are not worried about video-on-demand. They carry thousands of movie titles and they don't think there is any way for telephone or cable companies to put that assortment on their video servers.

Blockbuster, whose biggest asset is their 40 million members, will be moving into the CD-audio disc, CD-ROM software and VideoCD disc market shortly. Some will even be created on-the-spot right in the store - a feature that worries members of the music, video and software industry. They do not like giving up distribution control!

Blockbuster is also contemplating the modem-delivered electronic publishing business. They are already a significant factor in the video game rental market.

• It has been around some sixty years, **but the fact is that the FCC is a temporary agency which must be periodically "reauthorized."** Although their 1995 fiscal year budget is set at $188.4 million, Congress adjourned on October. 7th (for the third year in a row) without approving FCC authorization legislation. So many additions and amendments are hung on the bill that Congress has difficulty agreeing to all of them and runs out of time. They will try again next year.

• If you can't fight'em, join'em department. **IBM is slowly accepting that Microsoft's Windows software is here to stay.** They are shipping their new clone-priced "Aptiva" PC's with Windows 3.1 and Intel chips on board.

They haven't given up on their struggling OS/2 operating system and new PowerPC chips, just responding to market pressures for lower priced IBM compatibles. Their higher-priced business machines have both OS/2 and Windows.

Ten years ago, IBM picked Microsoft software and Intel chips for their PCs. But so did other PC makers and the lower-priced "clone" emerged the winner. The move away from Microsoft and Intel has not been successful for IBM. But they now have something for everybody.

• **We heard a rumor that IBM or Motorola will buy Apple Computer outright.** These three companies are the ones working on the "PowerPC" chip that is supposed to be better than Intel's "Pentium". By the way, new IBM PCs have the ability to diagnose and fix internal problems by modem!

• **Intel, today, is obsessed with developing PC-to-Cable TV bidirectional connectivity.** They think cable platforms are the delivery mode of the future. Intel also believes that the computer is the obvious choice for interactivity and that the potential of "set-top IVDS boxes" is very limited. Their "CableLink" cable modem/adapter is being tested in areas that have deployed hybrid fiber/coax networks.

• **More and more companies are taking an interest in the Internet.** Since the Clinton administration took office two years ago, talk about the NII (national information infrastructure) has reached a fever pitch.

The Commerce Dept. recently released a "NII Progress Report" which discusses the administration's attempt to reform telecommunications policy, expand open access to information and encourage a global information infrastructure.

Everyone wonders not only how we will all use this marvelous superhighway ...but, more importantly, how we will get on it. And therein lies the problem!

The 103rd Congress couldn't get Senate Bill 1822 passed because Industry groups are fighting tooth-and-nail to control the information "on-ramps." S.1822 is the massive telecommunications reform legislation that seeks to revamp the Communications Act.

FCC Chairman Reed Hundt told attendees at last month's USTA (United States Telephone Association) Convention that S.1822 was brought down by "partisanship and special-interest pleading" i.e. telecommunications lobbyists!

Cable, local telephone, long-distance carriers and other communications companies simply can't agree on the ground rules which will allow them to do business in someone else's backyard: their competitor's markets. It's like prisons - which everybody agrees we need "...but not in my neighborhood."

The legislative process leading toward the "highway of the future" starts all over again in January with the 104th Congress. Stay tuned.

• **But do you have the new model year version?** The computer/software industry may provide at least a stopgap answer. And at least one industry giant is not waiting for something to happen.

Bill Gates & Company (Microsoft) is simply going ahead with plans to offer the Internet to everyone. Microsoft supposedly will offer Internet access software as part of its **"Windows-95"** upgrade - now being secretly beta-tested under the code-name: "Chicago." Release is scheduled for "mid-1995."

This probably means that Microsoft will be reshaping the market by introducing a "Windows 96" ...and 97, 98 and so on! "Model-year" branding is a completely new (and ingenious promotional) concept in software!

The Internet access will probably be part of Microsoft's new "Marvel" online service - another badly kept secret! We hear they are lining up contracts with several online suppliers, including Viacom, ZiffNet ...and Charles Schwab & Co.

There is simply no telling how successful "Marvel" will be! But it has the potential to quickly dwarf the nation's largest ...and competitors are nervous! American Online, CompuServe and Prodigy have only a million or two subscribers each.

Microsoft has already sold some 60 million copies of Windows and owns the nation's largest mailing list of PC techies. More than half of those users are expected to upgrade - and with it comes the on-disk promotional push for "Marvel" online.

While industry is waiting for the government to do something, Bill Gates just plows ahead.

• **Prodigy, the Sears/IBM online consumer service is not standing by waiting for the fireworks.** They will also begin offering Internet access. They currently have Internet e-mail capability. Now Prodigy will provide a graphical user interface (GUI) to the Usenet news groups, that massive, unmanaged (and immensely popular) Internet bulletin board on every subject imaginable. (It is now in the test phase.) Some other Internet services will be ad supported.

Prodigy is also reducing their access and e-mail prices. And plans are in the works to get rid of that annoying billboard-type strip-ad across the bottom 20% of each screen. It will be replaced by a small corner box logo. The planned service upgrade is all part of their high speed "P2" service redesign.

The emphasis now will change from the advertiser to the consumer who Prodigy has identified as providing 90% of their revenue. Increased use will be made of multimedia: i.e. photos, sound and video. A new "chat stadium" will seat 20,000 - complete with stricter parental access controls to keep the kids out of the adult playpens.

• **Privacy and "Consumer Targeting" is becoming a big public issue in the interactive world** where the ability to gather personal information about subscribers is a key selling point.

U.S. Rep. Edward Markey (D., Mass.) sent a blistering e-mail letter to American Online for selling his name and hardware configuration to others. He asked AOL to respond to seven questions, including what information AOL had made available for sale, how much money AOL has made selling its lists and whether subscribers had been informed that this information would be made available to others.

AOL defended their action saying that the rental of mailing lists is a common business practice. They are now advising subscribers how to get off the list.) Prodigy also sells consumer data.

• **The cost to access the Internet may be going up in the future** since the level of government subsidy is rapidly declining. Most Internet providers charge about $20 per month - but this may have to change to a fee based on traffic handled over the network. Still, it will be a bargain.

Businesses are finding out that a long fax sent over the telephone can cost a few dollars. But the same message sent over the Internet costs only a few cents.

Bell operating companies and long-distance carriers also will be letting users tap into the Internet. It will be brutally competitive!

• **In its closing hours, the 103rd Congress passed the FBI Wiretap Bill.** The legislation, which mandates the re-design of the nation's telecommunications infrastructure to facilitate government interception, was enacted with no floor debate.

In the first four years, the government is required to reimburse common carriers for all costs associated with meeting the design requirements of the bill.

Unlike previous Digital Telephony proposals, this bill places no obligation on telecommunication carriers to decipher encrypted messages, unless the carrier actually holds the key. And the bill in no way prohibits citizens from using any type of encryption.

The bill explicitly excludes Internet providers, e-mail systems, hobbyist BBSs, and other online services such as Prodigy, CompuServe and AOL. Unlike the bills previously proposed by the FBI, this bill is limited to local and long distance telephone companies, cellular and PCS providers, and other common carriers.

The bill's sponsors, Senator Leahy and Rep. Edwards agreed that law enforcement access to transactional records in online communication systems threatens privacy rights because the records are personally identifiable, because they reveal the content of people's communications, and because the compilation of such records makes it easy for law enforcement agencies to create a detailed picture of people's lives online.

Records of users' communication activities as well as lists of the information, services, or people that they have accessed or contacted will now require a court order to obtain rather than a mere subpoena. The court order can only be issued based on the need for specific stated information relevant to an ongoing criminal investigation. This means that local, state and federal agencies may not request volumes of transactional records merely to see what it can find through traffic analysis. Court order protection will make it much more difficult for law enforcement to go on "fishing expeditions" hoping to find evidence of a crime by accident.

Much of the electronic surveillance conducted by law enforcement today involves gathering telephone dialing information through a device known as a 'pen register.' The bill prohibits the use of pen registers to track the physical location or movement of the calling or called party. This new limitation is a major safeguard which will prevent law enforcement from casually using mobile and intelligent communications services as nation-wide tracking systems.

A grassroots campaign on the Internet opposing the wiretap legislation is credited with protecting the privacy interests of network users.

• **The FCC has received several complaints about unclassified RTTY weather transmissions in the amateur 80 meter band.** The FCC Laurel monitoring facility received the first complaint on Sep. 29th.

The long-range direction-finding network swung into action and pinpointed the transmitter as being in Puerto Rico. Some of the transmissions even had the names of Naval officers who released the messages which were routed to other Navy bases

The FCC talked to one of these officers and he unbelievably denied they he or the Navy made the transmissions. The interference has now stopped - just in time for the CQ-WW Phone Contest. One suspicion is that recent events in Haiti may have necessitated military use of 3797 kHz.

• **The 1994 AMSAT-NA Annual Meeting and Space Symposium** was held Oct. 7-9 at the Orlando, Florida Airport Holiday Inn. Attendance set a new record with 227 registered including 24 from countries outside the U.S. Papers on most aspects of satellite design and operation were presented including an entire afternoon devoted to Phase 3D. The symposium was high-lighted by tours of the Phase 3D Integration Facility which has been established in a Foreign Trade Zone at the Orlando International Airport.

The AMSAT-NA Board of Directors met Oct. 9 and 10 at Orlando.

Topics addressed included long range planning for the organization following the completion and launch of Phase 3D, production of revenue for new projects from Phase 3D developed technology, future policies with respect to providing MICROSAT technology to overseas amateur groups, guidelines defining amateur satellites, interaction with the IARU, cooperation with various university groups building, or planning to build, satellites and the TAPR/AMSAT DSP-93 project.

The following officers were elected: President: Bill Tynan W3XO, Exec. VP: Keith Baker KB1SF, VP Engineering: Dick Jansson WD4FAB, VP Operations, Keith Pugh W5IU. Corp. Secretary/Manager, Martha Saragovitz and Treasurer: Art Feller KB4ZJ

• We received an Internet e-mail letter from Bob Vernall ZL2CA, who is one of the six managers of **ORACLE, the New Zealand *Organization Requesting Alternatives by Code-Less Examinations, Inc.*** "We are grateful for all the e-mail and letters in support of what we are doing. We have heard from many states and countries.

"Some USA respondents expressed concern that the existing U.S. amateur examination system was 'too easy' in the technical part, and that Morse code testing was the only 'difficult' challenge.

The matter of how examination standards have evolved in the USA is a national issue, and having sections that are "too easy" is generally not the case with amateur examinations in other countries. The USA examination is a matter for the FCC to work on. If the technical part is really "too easy" then it can be addressed within the U.S.

"ORACLE is lobbying to amend international regulation RR2735 which requires manual telegraphy knowledge as a prerequisite for HF amateur operation. Possible problems with the current USA amateur examinations should not be identified as a factor that holds back international change..."

FCC ON EMC: ELECTROMAGNETIC COMPATIBILITY

Dr. Thomas P. Stanley is the FCC's Chief Engineer. On Oct. 5th, he testified before a House Subcommittee on the subject of ***Electromagnetic Compatibility and Medical Devices.*** He said more effective shielding is a better answer than limiting transmissions by the public ...and that FCC regulations may not be necessary if the medical device industry adopts and adheres to its own standards Some of his (capsulized) testimony will be of interest to you:

"As we all know, this nation and the world are undergoing a communications revolution. ...the new national information infrastructure will increase productivity, create jobs, and improve education. Our job at the FCC is to make sure that competition is open and fair, that innovation proceeds as rapidly as possible and that all Americans have an opportunity to participate in the new world that communications technology is creating. ...Technological innovation is also spawning rapid advances in medical electronics and an increasing use of electronic devices in health monitoring and treatment.

The FCC's rules treat two general kinds of interference:

I) Interference between and among our licensed communications services, such as cellular radio telephones and television, and

2) Interference from communications devices that we authorize, such as cordless phones, with television or radio.

The FCC rules and enforcement procedures remedy these forms of interference by relying on separations in terms of frequency, power, time and/or distance.

Interference of the sort that you are exploring today is a specific example of what is called electromagnetic compatibility, or EMC, a term that generally signifies the capability of electronic devices, including medical devices, to function properly in an electromagnetic environment. The more immune a particular device is to electromagnetic signals, the better it functions in a variety of situations and locations.

Sources of electromagnetic signals usually transmit in all directions at once, or at least in a wide swath. These waves, once disseminated, cannot be programmed to change frequencies or avoid objects in their paths. If a medical device lies in the path of a signal of sufficient power and on frequencies to which the device is susceptible, the operation of the medical device can be disrupted.

It is impossible in many cases to know in advance the transmissions to which a medical device will be exposed. A defibrillator in an ambulance may be driven right by a powerful TV transmitter on one emergency run and parked in the midst of a dozen police and fire radios on another run. Of course, the ambulance itself will also have a radio that is constantly transmitting and receiving. An apnea monitor will be subjected to the normal broadcast signals received in the home but may also suddenly be in range of a utility repair truck's radio if a nearby water main breaks or an electrical line goes down. A wheelchair occupant, we hope, will have ready access throughout our communities, and he or she may therefore go in and out of range of all kinds of transmissions.

Those who originate wireless transmissions usually cannot know when there is a medical device within effective range of their transmissions. Nor can they know whether the fixed frequency and power on which they are licensed to operate will interfere with any of the medical devices that their transmissions might encounter. It is also usually impossible for the manufacturers of medical devices to know with precision all the transmissions a device would have to "tune out" in order to avoid EMC conflicts throughout its service life.

...medical devices can be designed, shielded or filtered to make sure that they will operate with increased immunity in the electromagnetic spectrum we encounter as a matter of course in our modern world. This is a realistic and workable solution to minimizing EMC problems in most, if not all, cases. It is worth noting that even where we know the exact source of interference, as where a nearby radio station transmitter interferes with a homeowner's telephone, the principal solution is to place a filter on the phone.

In solving EMC problems generally, the transmission can rarely be altered, except by turning it off; the passive device, however, can generally be made less susceptible to EMC problems. Precisely for these reasons, the European Community responded to concerns about EMC and medical devices by addressing the susceptibility of the devices rather than attempting to restrict communications services. Medical devices sold in Europe must now meet immunity standards for electromagnetic compatibility.

...it has been suggested that EMC problems could be prevented by managing radio transmissions within and around the medical facility. Prohibitions on certain transmitting sources such as cellular telephone, pagers, or hand-held radios within given distance of certain critical hospital areas have been decreed in some hospitals. We believe that this response ought to be regarded as a measure of last resort.

The importance of pagers and other communications devices to medical and other public safety personnel makes prohibiting transmissions a self-defeating measure. The expanding use of telemedicine, in which doctors at one facility conduct video consultations with doctors at distant facilities, sometimes by wireless communications, makes limiting transmissions even more of an undesirable approach to resolving EMC problems. Advances in medical electronics devices and in communications suggest that we need more, not less, of both technologies.

...the more comprehensive, long-term and practical solution to the EMC problem in most cases, whether the medical devices are mobile or stationary, in a home or in a hospital, is to make the medical devices more immune to undesired transmissions. Research is underway in this area and we do not believe that regulation will be necessary if the medical device industry will adopt and adhere to voluntary standards.

The Communications Act does not authorize the FCC to set EMC standards, with one exception: home electronics equipment. The Commission has not exercised this authority because we have felt that the costs associated with complying with mandatory immunity standards for the equipment would exceed the benefit obtained, given the relatively limited number of interference problems that exist. In specific cases -- televisions, for example -- the industry has adopted voluntary immunity standards at the urging of the FCC.

This cooperative approach is the best way to assure the safe operation of medical devices without disrupting our networks of communications."

FCC ISSUES FIRST LOW-EARTH ORBIT LICENSE

After decades of amateur experimentation and industry research and development, the FCC has granted the first VHF low-Earth Orbit (LEO) satellite license. This service officially is called the Non-Voice Non-Geostationary (NVNG) Satellite Service, but it is more popularly known as Little LEO. The NVNG service is the first, fully-commercial descendant of the Amateur Satellite Service pioneered by radio amateurs since the 1960s.

The first licensee is Orbital Communications Corp. (Orbcomm), a subsidiary of NASA space contractor Orbital Sciences Corp. (OSC) in Dulles, Virginia. Orbcomm plans to provide global E-mail, equipment monitoring, position-location and paging services through a network that eventually will grow to 36 satellites.

Although *Volunteers in Technical Assistance* (VITA) received early assurance of a license grant from the FCC for its VITASAT service, the organization has yet to receive the actual license.

To date, Orbcomm has launched three experimental NVNG satellites. One failed due to an anomaly in the battery charging circuit, but the other two are functioning. Two more will be launched in the next few months to begin intermittent commercial service.

We observed the satellites being constructed and tested during a recent tour of the Orbcomm headquarters. The Orbcomm MicroStar satellites fold into flat disks that can be stacked and ejected from the OSC Pegasus air-launched booster rocket. Once in space, a unique multifilar stem-like antenna deploys and the sides of the satellite fan out to reveal round solar arrays. The antenna replaced an earlier crossed-Yagi design. The final satellite configuration uncannily resembles a Mickey Mouse lollipop.

Orbcomm will provide one- and two-way data communications to pocket-size communicators costing as little as $50.00. Manufacturers are creating Orbcomm transceivers that connect to laptop computers for E-mail. Early users of the system will include shipping companies tracking the location of trailers and containers or monitoring conditions such as container temperature and oil and gas companies monitoring pressure in remote pipelines.

Unattended ground stations throughout the U.S. convey signals to and from the satellites and the Orbcomm center, including two HP minicomputers and communications equipment in the Orbcomm control room. The room is kept at frigid temperature to benefit the computing hardware. Arrays of Unix workstations running tracking software monitor and predict spacecraft position and status. A video projector beams tracking imagery onto a wall-mounted screen. The highly-automated system, which can be operated by two controllers, is a far cry from the massive Mission Control facilities required by satellites of old.

"Now that we have been granted the final FCC license to operate Orbcomm -- the world's first truly global personal communications network -- we will focus our immediate energies on launching and operating the first two satellites and aggressively marketing Orbcomm services," said David W. Thompson, co-founder, president and CEO of OSC. "Orbcomm will be more affordable and available sooner than any other proposed global communications system, giving us a significant advantage in pursuing a substantial share of the global communications market."

Orbcomm has an early start, but several companies are waiting in the wings to compete for NVNG service. Besides VITA, Starsys Global Positioning Inc., Final Analysis Inc., Leo One USA, Interferometrics and others are developing Little LEO strategies, hardware and FCC applications. Radio astronomy equipment manufacturer Interferometrics already orbits an experimental EYESAT satellite that contains an Amateur Radio packet radio payload.

ORBCOMM BANDS (MHz)
Uplinks 148-149.9 Downlinks 137-138
Satellite to User Beacon 400.5 - 400.15

POWER PROBLEMS KEPT "MIR" OFF HAM BANDS

Amateurs aboard the Russian MIR space station are now back on the air after being silenced by an electrical crisis. On Oct. 12, Radio Moscow reported power supply problems on the MIR orbital station and newspaper "Izvestiya" carried the headline "MIR Cosmonauts on Starvation Power Rations." A short circuit in one of the systems caused the solar wings used to charge chemical batteries to turn away from the sun.

"All auxiliary systems have been disengaged and all power is being used for life support and air regeneration," the reports said. Also, plans have been made to send up another set of solar batteries to the MIR station in early 1995 to "...make it possible to carry out a vast program of Joint Russo-U.S. research involving the MIR Orbiter."

There are currently five Russian Cosmonauts aboard the MIR complex which has been in orbit some nine years now - including one woman (Kondakova/-U6MIR) - and German astronaut (Ulf Merbold, DP3MIR) from the European Space Agency.

By firing rocket engines and using a standby computer, the Cosmonauts eventually succeeded in turning the solar cells to the sun and power was restored.

DP3MIR was heard last week by a Swedish radio listener on 145.50 MHz talking German with hams in Germany. U6MIR also called amateurs in Russian.